UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION I
JOHN F. KENNEDY FEDERAL BUILDING
BOSTON, MASSACHUSETTS 02203

FACT SHEET

DRAFT NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT TO DISCHARGE TO WATERS OF THE UNITED STATES

NPDES PERMIT NO.: MA0005304

STATE PERMIT NO.: 441

NAME AND ADDRESS OF APPLICANT: Ronald J. McBrien, Plant Manager
51 Eames Street
Wilmington, MA 01887

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

Olin Corporation
51 Eames Street
Wilmington, MA 01887

RECEIVING WATER: Unnamed tributary to Halls Brook

CLASSIFICATION: C

I. Proposed Action, Type of Facility, and Discharge Location.

The above named applicant has applied to the U.S. Environmental Protection Agency for revocation of their existing noncontact cooling water and stormwater discharge permit, expiring in 1988, and issuance of a new NPDES permit, effective for five years, to discharge treated contaminated groundwater into the designated receiving water. Olin has in the past, operated a manufacturing facility producing chemical blowing agents, antioxidants, stabilizers and other specialty chemicals for the rubber and plastics industry.

II. Description of Discharge.

A quantitative description of the discharge in terms of significant effluent parameters from permit application data is shown on Attachment A.

III. Limitations and Conditions.

The effluent limitations of the draft permit, the monitoring requirements, and any implementation schedule (if required) may be found on the following attachments: B1 - B5.

IV. Permit Basis and Explanation of Effluent Limitation Derivation.

Olin Corporation has in the past, operated a manufacturing facility which produced chemical blowing agents, antioxidants, stabilizers and other specialty chemicals for the rubber and plastics industry. Currently, Olin has a permit to discharge noncontact cooling water and stormwater into a tributary of Halls Brook. However, on September 1, 1986, all manufacturing operations at the facility were terminated by Olin Corporation. In addition, Olin is under an administrative order from the DEQE to pump and treat contaminated groundwater from the site. At the request of Olin, EPA is revoking Olin's existing permit for the noncontact cooling water and stormwater and issuing a new permit, effective for five years to discharge the treated groundwater.

The site is approximately 49 acres and is bounded on the north by Eames street, on the east and west by the MBTA railroad tracks and to the south by the Wilmington-Woburn town line. The plant facilities were located on the northern part of the site and two lagoons occupy the central portion; the southern half is wooded. Drainage ditches bound the site on the eastern and western edges; a third drainage complex bisects the site running west to east. Surrounding this drainage system is a low lying swampy area with a small pond. The groundwater flows southeast and recharges into the ditches surrounding the site. All the drainage ditches flow into the eastern drainage ditch which flows south to Halls Brook and Halls Brook flows into the Aberjona River. (See Attachment C).

The site has had a history of environmental problems. Both the groundwater and the surface water have been contaminated with chemicals used and produced on the site. Intensive studies were done by both the DEQE and Olin Corporation to assess the problems and to develop a solution. As a result of these studies, two major sources of contamination were clearly identified. The largest source of contamination were two lagoons used by the company to dry sludge. These lagoons were leaking and contaminating the ground water with ammonia. The second source of contamination was the area surrounding the chemical storage tanks located on the northeast portion of the site. As a result of numerous spills and leaks, both the groundwater and surface waters had been severly contaminated with organic pollutants from the chemicals stored in these tanks.

Under an administrative order from the DEQE, in 1982 Olin Corporation developed and implemented remedial measures to mitigate these problems. The remedial actions were implemented in phases. The first phase addressed the major source of contamination, the lagoons. The leaking lagoons were having the greatest impact on the groundwater. In order to prevent further groundwater contamination, the leaks in the lagoons were sealed by replacing the lagoon liners. This remedial

measure was also expected to result in significant improvements in surface water concentrations. The second phase addressed the contamination from the storage tank area. In this phase, surface water contamination was the greatest concern. To mitigate this problem, Olin installed an interceptor well system. The contaminated groundwater is pumped to protect the surface waters from further contamination. In addition, land excavation was necessary to remove contaminated soil from the area surrounding the tanks and on the banks of the east drainage ditch. The groundwater pumped from the interceptor well system is treated in an activated carbon system to remove the organic pollutants and will be discharged into the east drainage ditch which flows into Halls Brook.

The final phase of the remedial action plan required Olin to continue to monitor the groundwater and surface water at the site to provide information on the effectiveness of their remedial measures.

Explanation of Effluent Limitation Derivation

The Clean Water Act (CWA) established the national objective "to restore and maintain the chemical and biological integrity of the Nation's waters." The act requires the Administrator of the EPA to establish, for existing facilities, effluent limitations which set forth the degree of reduction attainable through the application of best practicable control technology currently available (BPT), best conventional pollutant control technology (BCT), and best abailable technology economically achievable (BAT) (Section 301 and 304). However, if these limitations are inapplicable then under section 40 CFR 125.3(a) limitations may be developed on a case-by-case basis.

The Act also requires EPA to obtain state certification that water quality standards will be satisfied. Under Section 301(b)(1)(C) of the CWA, discharges are subject to effluent limitations based on water quality standards. The Massachusetts Surface Water Quality Standards include a narrative statement that prohibits the discharge of any pollutant or combination of pollutants in quantities that would be toxic or injurious to human health or aquatic life, 314 CMR 4.03(4). The Commonwealth does not have numerical criteria for specific toxic pollutants or toxicity criteria. According to 314 CMR 4.30(2), EPA water quality criteria are to be used to interpret the narrative standard in 314 CMR 4.03(4). The water quality criteria developed by EPA represent instream concentrations which protect aquatic life and human health. End of pipe effluent limitations are developed from the criteria using the available instream dilution. In addition, Section 314 CMR 4.03(1) of the standards requires that, in interpreting and applying the minimum criteria, the Division shall consider local conditions including, but not limited to (a) the characteristics of the biological community; (b) temperature, weather, flow, physical and chemical characteristics; and (c) synergistic and antagonistic effects of combinations of pollutants.

Ammonia

The ammonia limit was established to protect the water quality standards. The end-of-pipe limit is equal to the national instream criteria determined by EPA to be non-toxic. Due to the levels of ammonia already present instream, no allowance has been given for the effects of dilution. The water quality criteria for ammonia is dependent on both temperature and pH. The effluent limit is based on a pH of 7.0 s.u., the average pH observed in Halls Brook and its tributaries. The temperature of the receiving stream varies significantly during the seasons. Therefore, seasonal limitations have been established. The instream water temperature is the highest during the months between June-August and the limit for this period is based on a temperature of 30°C. The criteria does not change significantly at temperatures below 20°C and thus the effluent limitation for the remaining months remains the same and is based on that temperature.

Organics

Many organic pollutants have been detected in the ground and surface waters at the Olin site. Olin's current treatment system is capable of and has been achieving removal of all organic pollutants to below detectable levels. Using best professional judgement (BPJ) pursuant to section 402 (a)(1) of the Act and the fact that the receiving stream has in the past suffered from severe degredation, the EPA is requiring Olin to continue treating their effluent to nondectable levels. Accordingly, effluent limitations have been established at practical detection limits for all organic pollutants detected on the site. These limits will also protect the water quality standards of the receiving stream.

Temperature, pH and Oil & Grease

The effluent limitations for temperature, pH, oil and grease have been established in accordance with state water quality standards and are necessary for certification of the permit.

Toxicity Limit

The NOAEL (No observed acute effect level) limitation was established in accordance with Section 301(b)(1)(c) of the CWA and is necessary to protect the aquatic life in the receiving water from the potential toxic effects of ammonia and the mixture of organics. The limit is intended to provide protection beyond that of limitations on individual parameters as it is sensitive to factors that are not accounted for by individual limitations, such as the additivity of toxic effects of individual compounds. Due to the levels of ammonia already present instream, the NOAEL limit was set at the most protective verifiable limit of the test procedure, i.e. 90%.

Toxicity Testing and Instream Monitoring

Section 308 of the CWA and corresponding State statutes authorize the EPA and the States to require of the owner/operator any information to determine compliance with the water quality standards or permit limits. Therefore, to demonstrate compliance with the toxicity limit, Olin is required to perform acute toxicity tests according to the protocol found on Attachments B3 and B5. In addition, Olin Corporation is required to perform effluent chronic toxicity tests and instream monitoring. The tests and the monitoring are necessary to assess the chronic effects, determine the fate and levels of ammonia in the receiving stream and to provide the EPA and the State with essential information to insure that water quality standards are being met in this environmentally sensitive groundwater/surface water zone.

Flow

The flow limit is based on the information presented in the application and is limited to 7200 GPD as a monthly average and 11,150 GPD as a daily maximum.

The effluent monitoring requirements have been established to yield data representative of the discharge under authority of Section 308 (a) of the CWA.

The remaining conditions of the permit are based on the NPDES regulations, Part 122 through 125 and consist primarily of management requirements common to all permits.

V. State Certification Requirements.

EPA may not issue a permit unless the State Water Pollution Control Agency with jurisdiction over the receiving waters certifies that the effluent limitations contained in the permit are stringent enough to assure that the discharge will not cause the receiving water to violate State Water Quality Standards. The staff of the Massachusetts Division of Water Pollution Control has reviewed the draft permit and advised EPA that the limitations are adequate to protect water quality. EPA has requested permit certification by the State and expects that the draft permit will be certified.

VI. Comment Period, Hearing Requests, and Procedures for Final Decisions.

All persons, including applicants, who believe any condition of the draft permit is inappropriate must raise all issues and submit all available arguments and all supporting material for their arguments in full by the close of the public comment period, to the U.S. EPA, Compliance Branch, JFK Federal Building, Boston, Massachusetts 02203. Any person, prior to such date, may submit a request in writing for a public hearing to consider the draft permit to EPA and the State Agency. Such requests shall state the nature of the issues proposed to be raised in the hearing. A public hearing may be held after at least thirty days public notice whenever the Regional Administrator finds that response to this

notice indicates significant public interest. In reaching a final decision on the draft permit the Regional Administrator will respond to all significant comments and make these responses available to the public at EPA's Boston office.

Following the close of the comment period, and after a public hearing, if such hearing is held, the Regional Adminsistrator will issue a final permit decision and forward a copy of the final decision to the applicant and each person who has submitted written comments or requested notice. Within 30 days following the notice of the final permit decision any interested person may submit a request for a formal hearing to reconsider or contest the final decision. Requests for formal hearings must satisfy the requirements of 40 C.F.R. §124.74, 48 Fed. Reg. 14279-14280 (April 1, 1983).

VII. EPA Contact.

Additional information concerning the draft permit may be obtained between the hours of 9:00 a.m. and 5:00 p.m., Monday through Friday, excluding holidays from:

Lynne Fratus, Environmental Engineer
WCI-2103
John F. Kennedy Federal Building
Boston, Massachusetts 02203
Telephone: (617)565-3507

October 8, 1986
Date

David A. Fierra, Director
Water Managment Division
Environmental Protection Agency

ATTACHMENT A

DESCRIPTION OF DISCHARGE: Outfall 002, treated groundwater

Parameter	Monthly Average	Daily Maximum
Flow (GPD)	7200	11,150
**pH (su)	5.8	6.2
Oil & Grease (mg/l)	-	<6.7
Ammonia (mg/l)	-	75
Bis(2-ethylhexyl)phthalate	-	BDL
Di-N-Butylphthalate	-	BDL
N-Nitrosodiphenylamine	-	BDL
*Benzene	-	BDL
*1,2-Dichloroethane	-	BDL
*Ethyl Benzene	-	BDL
*Methyl Chloride	-	BDL
*Toluene	-	BDL
*Di-N-Octyl phthalate	-	BDL

BDL = Below Detection Limit which is <10 ug/l

*These compounds have never been present or used in production quantities at this plant. However, they have been identified in one or more groundwater samples in the past.

**Represents minimum and maximum values, respectively.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. During the period beginning on the effective date and lasting through the expiration date the permittee is authorized to discharge from outfall serial number 002, treated groundwater.

a. Such discharges shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	Discharge Limitations Other Units(Specify) Avg. Monthly	Max. Daily	Monitoring Requirements Measurement Frequency	Sample Type
Flow - GPD	7,200	11,150	Continuous	Total Daily
Temperature - °C	-	28.3	2/Monthly	Grab
Oil & Grease - mg/l	-	15.0	2/Monthly	Grab
Di-N-Butylphthalate - ug/l	-	<10.0	2/Monthly	Grab
N-Nitrosdiphenylamine - ug/l	-	<10.0	2/Monthly	Grab
Benzene - ug/l	-	<10.0	2/Monthly	Grab
1,2 Dichloroethane - ug/l	-	<10.0	2/Monthly	Grab
Ethylbenzene - ug/l	-	<10.0	2/Monthly	Grab
Methyl Chloride - ug/l	-	<10.0	2/Monthly	Grab
Methylene Chloride - ug/l	-	<10.0	2/Monthly	Grab
Toluene - ug/l	-	<10.0	2/Monthly	Grab
Bis(2-Ethylhexyl)phthalate - ug/l	-	<10.0	2/Monthly	Grab
Di-N-Octylphthalate - ug/l	-	<10.0	2/Monthly	Grab
Ammonia (as N)- mg/l June 1 - August 31:	0.85	13.5	1/Weekly	Grab
September 1 - May 31:	1.7	18.9	1/Weekly	Grab
*Toxicity-NOAEL	-	>90%	1/Quarterly	Grab
NOCEL	monitor only		1/Quarterly	Grab

b. The pH shall not be less than 6.5 standard units nor greater than 8.0 standard units or not more than 0.2 su outside of the naturally occuring range and shall be monitored once a week by a grab sample, report minimum and maximum values.

c. There shall be no discharge of floating solids or visible foam in other than trace amounts.

d. Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location: outfall 002, prior to discharging.

* See page 4 of 8 for a description of the requested toxicity test.

ATTACHMENT B1

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

2. All existing manufacturing, commercial, mining, and silvicultural dischargers must notify the Director as soon as they know or have reason to believe:

a. That any activity has occurred or will occur which would result in the discharge, on a routine or frequent basis, of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels:"

(1) One hundred micrograms per liter (100 ug/l);

(2) Two hundred micrograms per liter (200 ug/l) for acrolein and acrylonitrile; five hundred micrograms per liter (500 ug/l) for 2,4-dinitrophenol and for 2-methyl-4,6-dinitrophenol; and one milligram per liter (1 mg/l) for antimony;

(3) Five (5) times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 C.F.R. §122.21(g)(7); or

(4) Any other notification level established by the Director in accordance with 40 C.F.R. §122.44(f).

b. That any activity has occurred or will occur which would result in the discharge, on a non-routine or infrequent basis, of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels:"

(1) Five hundred micrograms per liter (500 ug/l);

(2) One milligram per liter (1 mg/l) for antimony;

(3) Ten (10) times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 C.F.R. §122.21(g)(7); or

(4) Any other notification level established by the Director in accordance with 40 C.F.R. §122.44(f).

c. That they have begun or expect to begin to use or manufacture as an intermediate or final product or byproduct any toxic pollutant which was not reported in the permit application.

3. Toxicity Tests and Chemical Analyses

Once a quarter (January, April, July and October), acute and chronic toxicity tests will be performed with a grab sample of the effluent. Water from Halls Brook, taken at the New Boston Street crossing shown schematically on page 6 of 8 shall be used as the dilution water. The toxicity tests will be performed according to the procedures outlined below.

a. Description of Required Toxicity Testing:

Acute

Acute toxicity testing is used to determine the effluent concentration, by volume, that is lethal to 50 percent of the test organisms within a prescribed period of time, usually 96 hours or less. Death is the effect measured. Effluent toxicity thus measured is expressed as the median lethal concentration in percent effluent by volume, or LC50. The No Observed Acute Effect Level (NOAEL) is the effluent concentration at which 90% or more test organisms survive.

Test Protocol

Duration:	48 hours
Fresh Water Species:	Daphnid *Daphnia pulex* Fathead Minnow *Pimphales promelas*
End Point:	LC50 and No Observed Acute Effect Level (NOAEL)

Chronic

Chronic toxicity testing is used to determine the effluent concentration by volume that effects the survival, growth and reproduction of the test organisms within a prescribed period of time, usually seven days. Effluent toxicity thus measured is expressed as the No Observed Chronic Effect Level (NOCEL).

Test Protocol

Duration:	7 days
Fresh Water Species:	Daphnid *Ceriodaphnia dubia* (test to measure reproduction and survival) Fathead Minnow *Pimephales promelas* (test to measure growth and survival)
End Point:	No Observed Chronic Effect Level (NOCEL)

The testing procedures must be reviewed and approved in advance by the EPA's Environmental Services Division.

b. Chemical Analyses:

A portion of the effluent sample and the dilution water from Halls Brook shall be chemically analyzed for all the priority pollutants, ammonia(as N), hardness, alkalinity, acidity and pH.

c. References:

° Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, EPA/600/4-85/014

° Methods for Measuring the Acute Toxicity of Effluents to Fresh-Water and Marine Organisms, EPA/600/4-85/013

Results from both the toxicity tests and the chemical analysis shall be reported in accordance with Section B, Monitoring and Reporting on page 7 of 8. The results may be submitted on the 15th day of the second month following the month of sampling (i.e. January's results may be submitted no later than March 15th) with the Discharge Monitoring Report Forms submitted for that month.

4. Instream Monitoring

Once a month, grab samples of the receiving stream shall be taken and analyzed for ammonia at the five locations listed below and shown schematically on page 6 of 8. An estimate of the flow shall be made at the time of the sampling. The results of this monitoring shall be reported in accordance with Section B, of the permit.

(1) East Drainage Ditch, Olin's property, prior to combining with South Drainage Ditch

(2) South Drainage Ditch, Olin's property, prior to combining with East Drainage Ditch

(3) East Drainage Ditch, downstream from Olin's property, prior to combining with Halls Brook

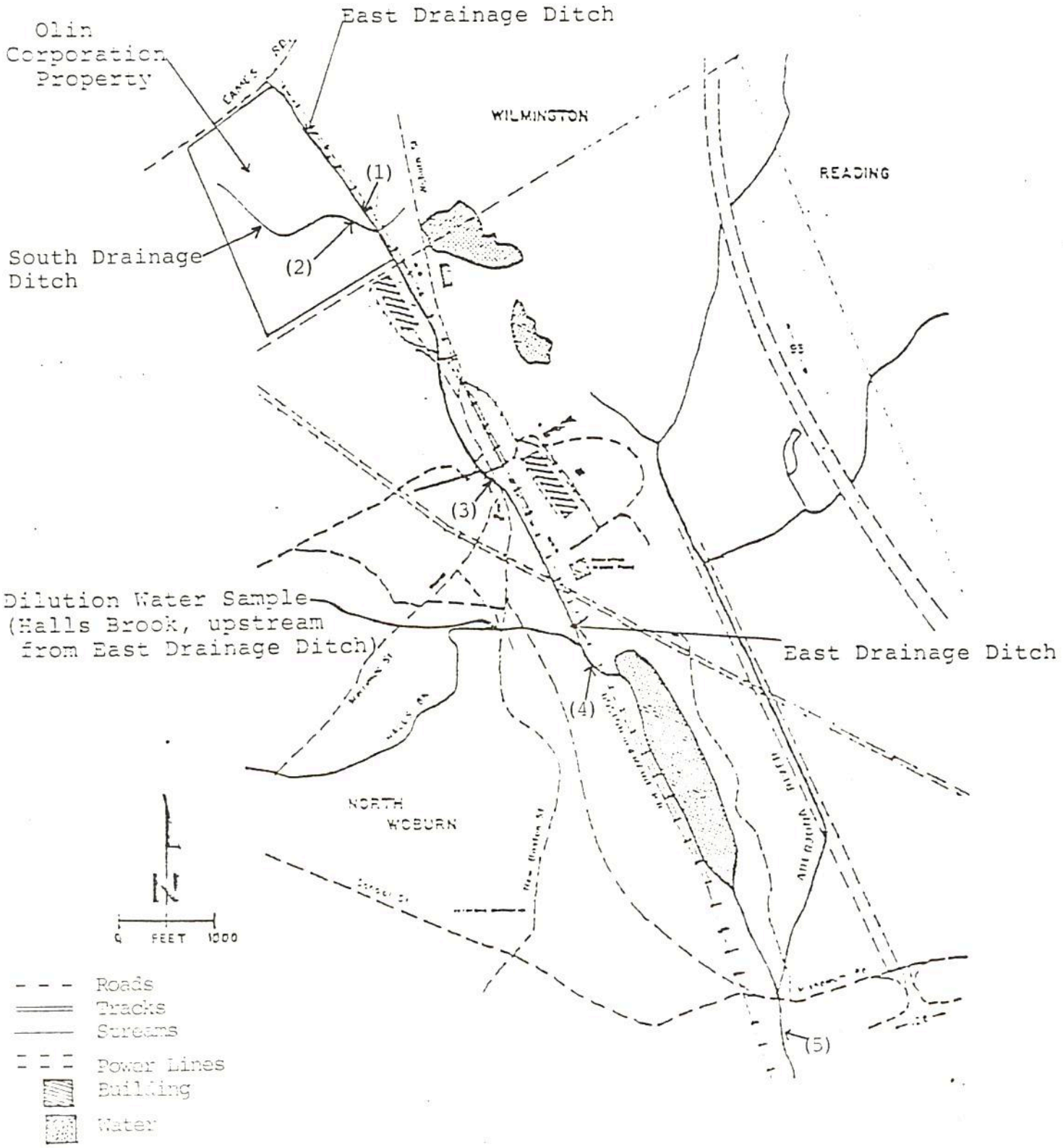
(4) Halls Brook, downstream from combining with the East Drainage Ditch

(5) Aberjona River, downstream from combining with Halls Brook

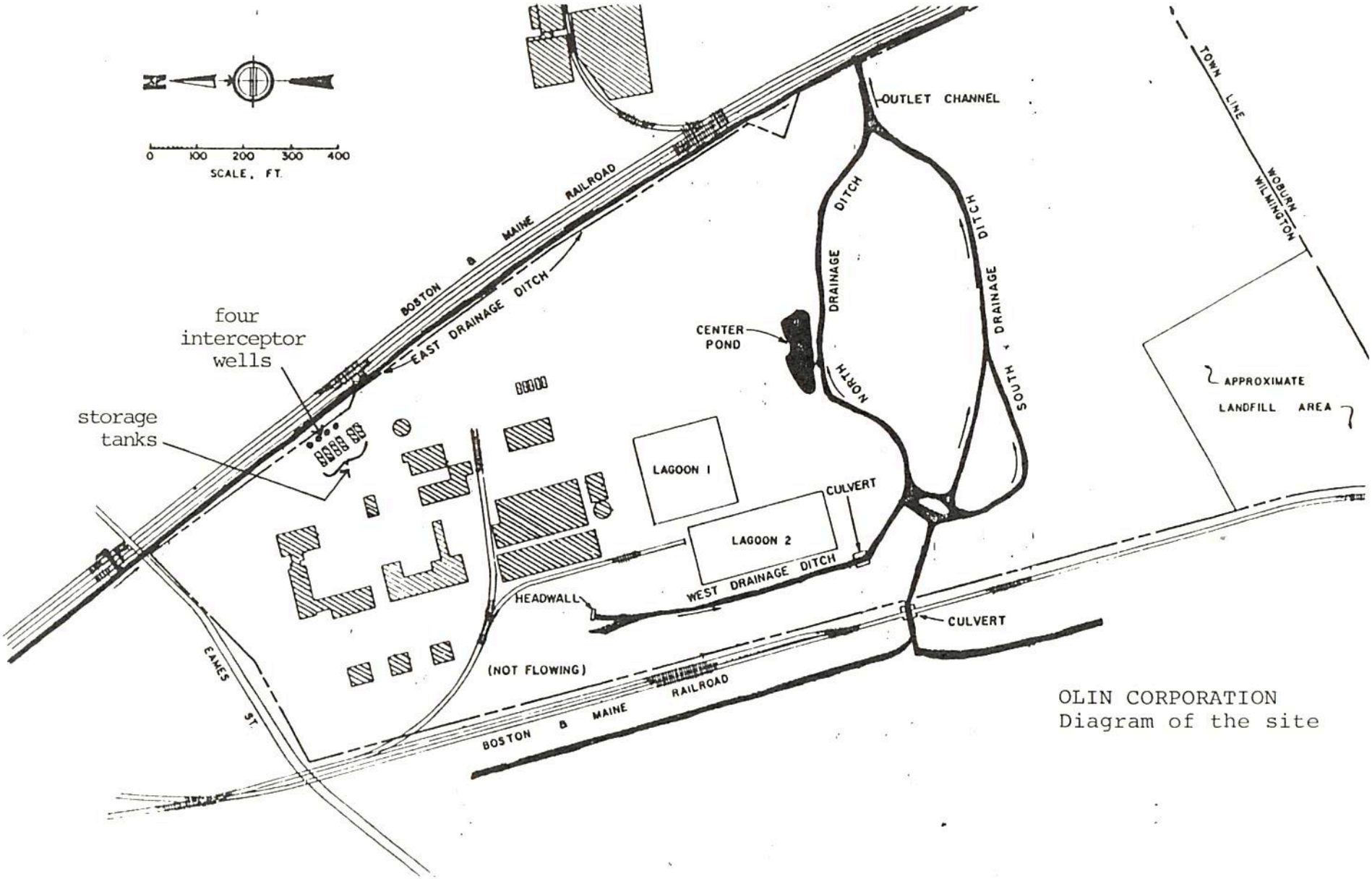
5. The issuance of this permit shall not relieve the permittee of any past or future responsibilities or liabilities under the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA) or the Resource Conservation and Recovery Act (RCRA).

6. This permit may be modified, or alternatively, revoked and reissued, to incorporate any new information developed as a result of the toxicity tests, chemical analyses and/or instream monitoring.

Toxicity Testing Dilution Water and
Instream Monitoring Sample Locations



ATTACHMENT C



OLIN CORPORATION
Diagram of the site